SLITRK6 gene

SLIT and NTRK like family member 6

Normal Function

The *SLITRK6* gene provides instructions for making a protein that is found primarily in the inner ear and the eye. This protein promotes growth and survival of nerve cells (neurons) in the inner ear that transmit sound (auditory) signals. It also controls (regulates) the growth of the eye after birth. In particular, the SLITRK6 protein influences the length of the eyeball (axial length), which affects whether a person will be nearsighted or farsighted, or will have normal vision. The SLITRK6 protein spans the cell membrane, where it is anchored in the proper position to perform its function.

Health Conditions Related to Genetic Changes

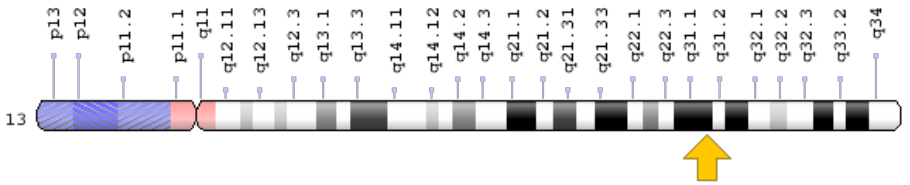
deafness and myopia syndrome

At least three *SLITRK6* gene mutations have been identified in people with deafness and myopia syndrome, a disorder that causes both hearing loss and severe nearsightedness (high myopia). The mutations that cause deafness and myopia syndrome result in an abnormally short SLITRK6 protein that is not anchored properly to the cell membrane. As a result, the protein is unable to function normally. Impaired SLITRK6 protein function leads to abnormal nerve development in the inner ear and improperly controlled eyeball growth, resulting in the hearing loss and nearsightedness that occur in deafness and myopia syndrome.

Chromosomal Location

Cytogenetic Location: 13q31.1, which is the long (q) arm of chromosome 13 at position 31.1

Molecular Location: base pairs 85,792,787 to 85,799,348 on chromosome 13 (Homo sapiens Annotation Release 108, GRCh38.p7) (NCBI)



Credit: Genome Decoration Page/NCBI

Other Names for This Gene

- 4832410J21Rik
- DFNMYP
- FLJ22774
- SLIT and NTRK-like family, member 6
- SLIT and NTRK-like protein 6 precursor
- slit and trk like gene 6

Additional Information & Resources

Educational Resources

- Madame Curie Bioscience Database: Branching Morphogenesis in Vertebrate Neurons
  https://www.ncbi.nlm.nih.gov/books/NBK6520/

GeneReviews

- Deafness and Myopia Syndrome
  https://www.ncbi.nlm.nih.gov/books/NBK269029

Scientific Articles on PubMed

- PubMed
  https://www.ncbi.nlm.nih.gov/pubmed?term=%28%28SLITRK6%5BTIAB%5D%29+OR+%28SLIT+and+NTRK-like+family,+member+6%5BTIAB%5D%29%29+OR+%28%28DFNMYP%5BTIAB%5D%29+OR+%28SLIT+and+NTRK-like+protein+6+precursor%5BTIAB%5D%29+OR+%28slit+and+trk+like+gene+6%5BTIAB%5D%29%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D

OMIM

- SLIT- AND NTRK-LIKE FAMILY, MEMBER 6
  http://omim.org/entry/609681

Research Resources

- ClinVar
  https://www.ncbi.nlm.nih.gov/clinvar?term=SLITRK6%5Bgene%5D
- HGNC Gene Symbol Report
  http://www.genenames.org/cgi-bin/gene_symbol_report?q=data/hgnc_data.php&hgnc_id=23503
- NCBI Gene
  https://www.ncbi.nlm.nih.gov/gene/84189
- UniProt
  http://www.uniprot.org/uniprot/Q9H5Y7

Sources for This Summary

- Aruga J, Yokota N, Mikoshiba K. Human SLITRK family genes: genomic organization and expression profiling in normal brain and brain tumor tissue. Gene. 2003 Oct 2;315:87-94.
  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/14557068
- Morlet T, Rabinowitz MR, Looney LR, Riegner T, Greenwood LA, Sherman EA, Achilly N, Zhu A, Yoo E, O'Reilly RC, Jinks RN, Puffenberger EG, Heaps A, Morton H, Strauss KA. A homozygous SLITRK6 nonsense mutation is associated with progressive auditory neuropathy in humans. Laryngoscope. 2014 Mar;124(3):E95-103. doi: 10.1002/lary.24361. Epub 2013 Dec 17.
  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/23946138
  Free article on PubMed Central: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3925201/

- OMIM: SLIT- AND NTRK-LIKE FAMILY, MEMBER 6
  http://omim.org/entry/609681
- Tekin M, Chioza BA, Matsumoto Y, Diaz-Horta O, Cross HE, Duman D, Kokotas H, Moore-Barton HL, Sakoori K, Ota M, Odaka YS, Foster J 2nd, Cengiz FB, Tokgoz-Yilmaz S, Tekeli O, Grigoriadou M, Petersen MB, Sreekantan-Nair A, Gurtz K, Xia XJ, Pandya A, Patton MA, Young JI, Aruga J, Crosby AH. SLITRK6 mutations cause myopia and deafness in humans and mice. J Clin Invest. 2013 May;123(5):2094-102. doi: 10.1172/JCI65853. Epub 2013 Apr 1.
  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/23543054
  Free article on PubMed Central: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3635725/

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